clude the possibility of dopamine being the responsible factor.

83 The Blood–Brain Barrier. H. DAVSON (United Kingdom).

The various factors determining the rate of penetration of substances from blood to the nervous tissue of the brain and spinal cord will be discussed.

84 Exchange between Cerebrospinal Fluid and Blood. J. R. PAPPENHEIMER and S. R. HEISEY (U.S.A.).

Large bore cannulae have been implanted over the cerebral ventricles and in the cisternae magnae of goats. Animals survive in good health and their ventriculo-cisternal systems may be perfused with synthetic CSF of normal ionic composition without detectable circulatory, respiratory or behavioural changes. Steady-state transfer rates between CSF and blood can be measured from differences between inflow and outflow of test substances. Normal permeabilities (flux rates per unit concentration difference) to creatinine and inulin average 0·19 and 0·12 ml/min, respectively, and may be accounted for by passive processes. Diodrast and phenol red (in low concentrations) are removed rapidly from CSF to blood by a process of active transport resembling secretion by the proximal tubules of the kidney; clearances of these substances from CSF may exceed 1 ml/min. The locus of active transport occupies a volume of about 2 ml in the region of the fourth ventricle and cistern magna.[1] The extraction of K^+ from CSF perfusion decreases with increasing concentration, suggesting that this ion is also removed by active transport. Preliminary experiments indicate that large increases of K^+ are required to produce a rise in blood pressure comparable with that caused by a small decrease in Ca^{++}. It is possible that an active transport system for K^+ must be saturated before an increased concentration in CSF can penetrate to fluid immediately surrounding neurones.

1. (1960), *Amer. J. Physio.*, **200**, 1.

85 Discussion of Previous Paper. D. P. RALL (U.S.A.).

86 Pharmacology of Aqueous Humour Formation and Outflow. E. BÁRÁNY (Sweden).

Some anatomical and physiological facts concerning the ciliary epithelium and the trabecular meshwork in the angle of the anterior chamber will be briefly presented. The methods used for the measurement of rate of production of aqueous humour and its outflow resistance will then be critically surveyed. Finally, what little is known concerning the pharmacology of the secretory system and the outflow system will be discussed.

87 Discussion of Previous Paper. T. MAREN (U.S.A.).

88 Pharmacological Control of Prolactin Secretion and Lactation. J. MEITES (U.S.A.).

Many substances can induce prolactin release from the anterior pituitary of rats and/or rabbits, and elicit mammary growth and secretion. These include oestrogens, progesterone, testosterone, cortisol, adrenalin, noradrenalin, acetylcholine, serotonin. pilocarpine, eserine, atropine, amphetamine, morphine, reserpine, chlorpromazine, meprobamate and several carcinogens; rat hypothalamic extract and Guillemin's CRF; electrical stimulation of the head, nasal mucosa, nipples, lumbar region and uterine cervix; non-specific stresses such as cold, heat, restraint or formalin injections; and transplantation of the rat pituitary to the kidney capsule. Large doses of oxytocin, vasopressin, histamine, Dibenemine and LSD 25 were unable to elicit mammary secretion.

The effective agents apparently released ACTH as well as prolactin, since both hormones are necessary to elicit mammary secretion in intact rats, and thymus wt. was significantly reduced. These agents were ineffective in hypophysectomized rats. Induction of mammary secretion by pituitary transplantation confirms the view that the CNS normally inhibits prolactin release; however, it is doubtful that all agents used inhibited the CNS, i.e. rat hypothalamic extract, Guillemin's CRF and some drugs. Also, in hypophysectomized rats with pituitary transplants, injections of reserpine, serotonin, adrenalin, acetylcholine or formalin significantly increased the percentage of rats showing mammary growth and secretion. Some agents may therefore stimulate a CNS centre(s) which activates the anterior pituitary to induce mammary growth and secretion. Cultures of pituitary explants *in vitro* secrete substantial amounts of prolactin[1] and studies are now in progress to determine which agents can directly influence this process.

1. MEITES, KAHN and NICOLL (1961). Programme of 43rd Meeting, The Endocrine Society, page 3, June 22–24, New York, N.Y.

89 Control of Ovulation in Women. G. PINCUS and C.-R. GARCIA (U.S.A.).

In women suggestive, but not conclusive evidence of the suppressive action of progestins has been noted by means of the indices of ovulation (basal body temperature, vaginal smears, endometrial biopsies and urinary pregnanediol). Of these, marked reduction of urinary pregnanediol excretion is indeed most suggestive. Furthermore, inspection of the ovaries at time of laparotomy during the latter phases of cyclic administration of progestins also confirms the failure of ovum release. Although inconsistent results as regards reduction of total